

The Cary Arboretum

of The New York Botanical Garden



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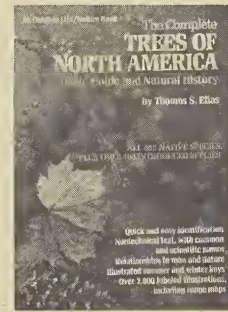
Thomas Elias Touted Peterson of Tree World

The Complete Trees of North America by Arboretum Dendrologist Dr. Thomas S. Elias has just been published by Times Mirror Magazines and the Van Nostrand Reinhold Publishing Companies. This 948-page field guide to all the native trees north of Mexico, and over 100 commonly encountered introduced species, contains more than 2,000 labeled illustrations including range maps and details of the flowers, fruits and leaves. The book is designed for the quick identification of trees using nontechnical language and illustrated summer and winter keys.

The book is also a substantial natural history guide containing information about the habitat, ecology, and uses by wildlife and by man of the trees of North America.

Following many years of gathering information, the book took over three years to write. It has been designated as the main selection of the Outdoor Life Book Club and the Nature Book Club. Later this year, it will be an alternate selection of the Popular Science Book Club, the Women's How-to Book Club, and the Natural History Book Club.

The initial reviews are excellent. Les Line, Editor of Audubon Magazine stated "*The Complete Trees of North America* is a guide I've needed for many years." Dr. Ed Ketchledge, College of Environmental Science and Forestry at Syracuse said "I predict that *The Complete Trees of North America* will be the leader in its field." "This guide gives you



everything that counts . . ." says Michael McCloskey, Executive Director, Sierra Club. "What Roger Tory Peterson is to birds, Thomas Elias has become to trees," said Dan Saults, President of the Outdoor Writers Association of America.

Copies of this book are available in the Cary Arboretum Gift Shop, along with *Extinction Is Forever* which Dr. Elias coedited. In addition many other books on botany, horticulture, and other subjects are available.

Millbrook Club Donates \$2,000 to Gifford House Garden

The Millbrook Garden Club, continuing a 67-year tradition of contributing time, effort, and money to the Millbrook community, recently presented a check in the amount of \$2,000 to Arboretum Director Dr. Willard Payne to aid in the restoration of the Gifford House Garden.

The Garden, which is expected to be one of the outstanding perennial gardens in the area, is currently being planned by Arboretum Horticulturist Robert Hebb, and well-known garden expert Carlton B. Lees, Senior Vice President of the New York Botanical Garden.

"We are very pleased for this support of our effort to rebuild these elegant gardens," said Dr. Willard W. Payne, Arboretum Director, "and we are even more grateful for the generous expressions of goodwill and enthusiasm for the future that are brought to us from this important organization."

The Millbrook Garden Club has enhanced the natural beauty of the area by contributing to Tribute Gardens and Veterans' Green, as well as to the landscaping of Sharon Hospital, the Millbrook Library, village streets, and the



From left, Mrs. Thurston Greene, Robert Hebb, and Mrs. Walter Gheradi look on as Mrs. Ian Morrison presents a check to Dr. Willard Payne for the restoration of the Gifford House Garden.

Millbrook High School. Funds for projects have been raised by plant sales, flower shows, needlework and a Christmas bazaar.

One-of-a-Kind Maple has Grafted Offspring

Mystical to some, but described as a genetic abnormality by Arboretum Horticulturist Robert Hebb, the "Stanfordville Maple", a one-in-a-million sport from sugar maple parents, is being successfully propagated in the Arboretum's greenhouse.

"My husband and I discovered the tree about two years ago", says Mrs. Randel Smith of Stanfordville. The young tree, which is about 15 feet tall, was spared during a spring clean-up of unwanted trees and brush on the Randel's property because of its unusual characteristics.

"No two leaves on this tree are alike," says Mrs. Smith as she pulls a branch towards her. "I've collected and pressed over 200 leaves and each one is different."

(continued on page 2)

Deer Tagging Program Ends

In May of 1975, graduate student Jay McAninch and his wife, then pregnant, captured the first deer on the Arboretum grounds. Since then, 128 individual deer have been captured, tagged, and monitored in a wildlife program developed to evaluate the populations, conditions, and habits of resident deer.

Under the direction of Mr. McAninch, who is now the Arboretum's Coordinator of Wildlife Resources, data from this project have provided information on individual deer, as well as for the entire herd. The bulk of the deer tagging was done between January 1, 1977, and February 1, 1980, and involved thousands of hours of invaluable volunteer assistance. Together, Arboretum volunteers and staff members captured deer using browse- and apple-baited box traps and an immobilizing process with tranquilizer darts.

The main objectives of the program were to determine the rates of emigration out of and immigration into the Arboretum, to establish a population census, and to trace individual life histories and travel patterns of resident deer. The goal of the project is to acquire ability to control deer population structure, movement, and browsing patterns through ecological management techniques so as to protect valuable Arboretum plantings.

Through careful monitoring of the herd, members of the Wildlife Department were able to note the number of offspring each tagged female contributed to the population. One six-month-old male, tagged in November 1977, was captured and examined more than 20 times during a two-and-a-half-year period, and is now one of the largest deer on the Arboretum grounds.

Capturing the streamer and collar marked deer allowed data such as physical measurements, body weight, and physiological condition to be collected and recorded on each animal's individual record. More

importantly, these could be translated into statistically valid summaries, and correlated so as to find predictor items that accurately reflect other conditions difficult to observe firsthand.

The harsh winter of 1978 provided especially valuable information on the ability of deer to cope with severe weather and little food. It was noted that some deer roamed great distances in search of food, and the staff recorded drastic changes in blood metabolism and weight as a result of different conditions.

It was noted that marked juvenile males who were growing antlers changed their movement patterns. According to Mr. McAninch, a social dilemma or "adolescent anxiety" caused some young males to leave the area, later to be found as far away as Hyde Park, Pine Plains, and bordering Columbia County. These movement patterns by juvenile males resulted from pressures exerted by older, larger antlered males.

During the past three years, findings such as these have been presented to numerous sportsmen's federations, deer biologists in several northeastern states, grade schools, local fairs, and environmentalist groups, as well as to other scientists and to state and Federal legislative bodies. In addition to the hundreds of volunteers who participated in the deer program, many students from as far away as West Germany joined in research on specific areas of the program, including how deer communicate, data collection techniques for live deer, population studies, movement patterns, and rutting behavior.

Data from the study are currently being compiled by William Lizotte, an undergraduate student at the University of Connecticut. Several agencies have expressed interest in having the Arboretum pursue deer biology studies for use in solving deer management problems throughout the Northeast.

Clive Jones Named to Chemical Ecologist Post

Dr. Clive Jones, a graduate of the Universities of Salford and York, England,



and who has just completed a Post-Doctoral Fellowship at the University of Georgia, has recently been appointed Chemical Ecologist for the Cary Arboretum.

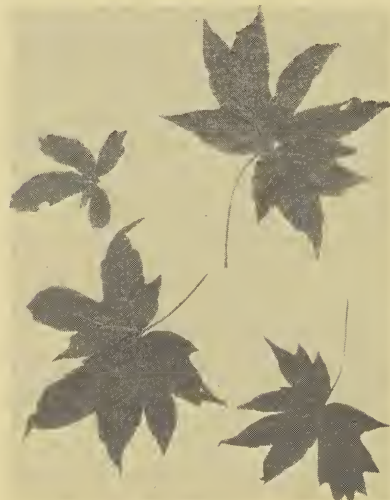
Dr. Jones, who moved to the U.S. in December, 1977, is especially interested in studying the chemical ecology of interactions between plants and animals, including insects and mammals. He will work closely with Arboretum Dendrologist Dr. Thomas Elias on research involving interactions between foliar nectaries and ants, and with Coordinator of Wildlife Resources Jay McAninch on plant deer repellents.

Dr. Jones' wife Catherine is working toward her doctorate in medieval English literature, and currently is writing part of a book on medieval women authors. Their move to Dutchess County from Georgia has been a refreshing, exciting change. "Besides working in the laboratory, I also enjoy field work," says Dr. Jones. "So it is especially nice that the surrounding environment is so attractive."

One-of-a-Kind Maple has Grafted Offspring

(continued from page 1)

Realizing this unusual specimen would be of horticultural interest, Mrs. Smith contacted Robert Hebb, who went to see the young sugar maple (*Acer saccharum*) last autumn. "The lobes were different sizes in each leaf, and even within a single leaf," reports Mr. Hebb. "This type of mutation is very rare — I have never seen another tree like it!"



Leaf samples from the "Stanfordville Maple" — "I have never seen anything like it!" says Horticulturist Bob Hebb.

Dr. Willard Payne, Director of the Arboretum, is delighted to have this new plant for the Arboretum's collection. "We know virtually nothing about the molecular biology of leaf morphology control. In this plant, the control mechanisms have obviously gone haywire. Perhaps we can find here clues to one of the most intriguing of botanical questions — how are organs of particular species produced with particular shapes?"

Mrs. Smith's main interest was to preserve the tree. However, the specimen is partially inbedded in a stone wall along Hunns Lake Road, and, according to Mr. Hebb, would be difficult to move to the Arboretum grounds as Mrs. Smith had hoped.

In March, Arboretum Propagator Paul Mihan and Mr. Hebb removed young twigs from the tree and grafted them on to established understock (three-year old sugar maple seedlings) in the Arboretum's greenhouse. Atypical sugar maples can only be perpetuated through grafting, which involves a timely, tedious procedure of cutting and inserting stem tips of the tree to be grafted onto an established seedling that becomes the rootstock.

Within 1½ months, small leaves — all different — began to sprout from 10 young plants. According to Mr. Hebb, the trees will mature and be studied to determine growth rate and hardiness, later to be registered as *Acer saccharum* 'Stanfordville'.

Don't Forget! Music at the Arboretum
July 6th, West Point Military Stage Band
July 20th, Hudson Valley Philharmonic
Dixieland Band. August 3rd, Dutchess
Community College Jazz Ensemble. In
the Cary Music Bowl, Gifford House
at 4 p.m. Come early and Picnic on the
lawn. July 6th Concert FREE, July
20th and August 3rd Concert
Admission; Regular \$5, Members and
Senior Citizens \$4., Children \$2.50.

Computer Sets New Pace at Cary

What remembers everything, types 45 characters per second, and doesn't take a lunch break?

A Heath H-11A microcomputer used by Dr. Thomas Elias and Lydia Newcombe has proven to be a speedy and efficient co-worker in their Plant Science Building lab.

A grant from the Urban Forestry Organization enabled the evolutionary botany lab to acquire the computer in July 1979. Since then it has carried a workload of thousands of entries, doing instant calculations and storing research data and bibliographic entries.

According to Miss Newcombe, Research Assistant, learning the operating system and programming language was fascinating. The computer, which uses only a 5-foot desk area, consists of a central processing unit, or memory, a terminal and TV screen for communicating with the processor, and a disk storage unit that provides extra memory.

One of the first projects completed with the aid of the computer was the compilation of a 56-page urban forester's directory for the U.S. Forest Service. More than 1,300 names and addresses of practicing urban foresters are stored on two small flexible disks that resemble 45 rpm records. For larger projects, such as the analysis of approximately 55,000 pieces of data gathered in a recent tree survey in Milford, Pennsylvania, the video terminal can be connected by telephone line to the much larger computer at Marist College.

Further plans include text editing — typing a manuscript directly onto the screen and correcting it there before it ever reaches paper — and a prospective tie-in with a commercial literature retrieval service.

At the Garden

July and August are always active months in northern gardens, and this is especially true for the New York Botanical Garden.

Thousands of caladiums are featured during the Summer in the beautiful Enid A. Haupt Conservatory, open free to Arboretum members from 10 a.m. to 4 p.m. Tuesday through Sunday. (Be sure and bring your membership card.) Admission for non-members is \$2.50.

Summer courses at the Garden include a wide range of offerings in botany, gardening, landscaping and crafts. Summer tours, also

arranged by the Garden's Education Department, include a 3-day visit to five of the fabulous 1890's homes in Newport, Rhode Island, and a 2-week excursion to Thailand during its peak flowering season.

Family Weekend will be held on August 31 and September 1. This annual Labor Day Festival will feature music, dance, a craft fair, and magic puppet shows. Admission is free.

For more information on events at the New York Botanical Garden, contact Robin Parow, (914) 677-5343.

Special thanks ...

...to our members who are responding to our spring membership enrollment drive. Member-recruiters receive a *Cornus kousa chinensis* sapling. Horticulturist Robert Hebb describes this versatile ornamental tree as follows:

The oriental dogwood (*Cornus kousa*) combines more desirable ornamental characteristics than perhaps any other small tree hardy in Dutchess County. It blossoms in mid-June, approximately two to three weeks after our native dogwood, cherries, crabapples, lilacs, and other favorite spring flowering plants have finished.

The four, showy white bracts (which resemble petals) are pointed, giving a distinctly different shape when contrasted to our native flowering dogwood. In addition,

the flowers are borne in an upright position atop the branches. This flower arrangement provides a unique tiered effect. Flowers last an amazingly long time, up to three weeks, and extend their effect well into July. As the flowers age, they turn from pure white to a soft pink.

The fruits, which resemble a large two-inch, reddish raspberry, appear in late summer. These are edible and high in vitamin C. The Chinese have many recipes for their use. The tree usually fruits very heavily and, when the leaves assume their beautiful reddish-purple autumn coloration, the contrast between fruits and leaves is striking.

Few trees combine so many interesting features. If these were not enough, oriental dogwood is also exceptionally hardy and has no major pest or disease problems. Flower buds appear on current season's growth so that flowering is never lessened by severe winter weather as with the native species which set flowerbuds in the preceding summer season.

Cornus kousa will ultimately reach a height of twenty feet, with dense branching habit. Best results are obtained if it is planted in full sun, with some protection from the worst of winter wind, and in a soil that is well drained but has reasonable moisture retention in summer.

Cary Arboretum members who have reaped the rewards of our special spring offer as we go to press are: Mrs. Linda Ahlin, Mrs. Harding F. Bancroft, Mr. Harold S. Bates, Mrs. Mary E. Best, Mrs. James R. Breed, Mrs. John A. deVeer, Ms. Denise Dyko, Mr. Egbert T. Green, Jr., Ms. Barbara Harrington, Ms. Faith F. Hill, Mrs. Claire Hoffman, Ms. Martha T. Kostszewski, Mrs. Peter E. McGregor, Mr. J.L. Parsley, Mrs. Clarence B. Poland, Mrs. Walker Reid, Mr. and Mrs. Ronald S. Rosen, Ms. Virginia Sherman, Ms. Barbara R. Shultz, Ms. Arlene Sitomer, Mr. and Mrs. Charles Hoyt Smith, Mrs. J.R. Starace, Mrs. Ruth G. Walling, and Dr. and Mrs. Robert H. Wylie.

There are still *Cornus kousa* available for each new member you enlist or for each gift membership that you give.

People at the Arboretum



Maria Butcher, Research Assistant... It's not unusual to see Maria Butcher tucked away in the Wildlife Research Laboratory.

She may be processing vole organs or sectioning deer teeth, but whatever it is, she's enjoying it. As a Wildlife Research Assistant for 3½ years, Maria has encountered a varied spectrum of responsibilities, including small mammal trapping in Ulster County apple orchards, and deer trapping on the Arboretum grounds (see article this issue), as well as data management and laboratory work.

At home, she and her husband Bill, who is a mechanic at Healy International Harvester, are raising a son, Jordan, who was born at home in March, 1979. Although it's too soon to tell, Maria attributes Jordan's easy-going character to the in-home birth method. Together, they are a family who take an interest in fishing, camping, and gardening. Originally from Hyde Park, Maria also enjoys baking, needlepoint, and sewing.

"My job at Cary is like a big family," she says. "We all work together, learn together, and have common goals."

Nine Partners Garden Club Raises Over \$1,000 for Gifford Garden

Over \$1,000 was raised at an Antiques Fair held June 14 to benefit the restoration of the Gifford House Garden.

The Garden, which is being planned by Arboretum Horticulturist Robert Hebb, and Senior Vice President Carlton Lees, will be an outstanding perennial garden accessible in most seasons to all visitors, including the handicapped.

The Antiques Fair, held on the Gifford House lawn, featured 23 antique dealers

from Connecticut, Massachusetts and several New York counties. Entrance fees to the fair, a plant raffle, and desert table all contributed to the successful event, which attracted over 500 antique collectors.

Mrs. May Corcoran, Mrs. Carol Dawson, Mrs. Priscilla DeVeer, Mrs. Connie Gros, Mrs. Sally Gifford O'Brien, Mrs. June Payne, Mrs. Doris Roeller, and Mrs. Betty Smith led committees for the fair, and, to benefit the Gifford Garden, hope the Antiques Fair will become an annual event.

Dr. Payne to England

Arboretum Director, Dr. Willard Payne, whose major research enthusiasms include evolutionary botany and systematics, was a guest speaker at the International Palynological Conference held in Cambridge, England, June 29 through July 6.

The paper, presented before leading scientists from around the world, was based on his research on the structural basis for evolution of the walls of pollen grains of flowering plants. "The ecology of the pollen grain has enormous biological significance," says Dr. Payne. "The grains are actually tiny, highly modified male plants that produce sperms necessary to fertilize eggs to produce the next plant generation. Surviving isolation in the air during pollination without drying up is accomplished by developing water retention capacities equivalent to more than 900 atmospheres' pressure (about 13,320 pounds per square inch.) The structure, geometry, and substance of the pollen wall makes this possible."

Dr. Payne's research also includes studies of the biology of ragweeds, pollen, and plant hairs, and the evolution of sex. He will be a participant in the International Botanical Congress which will be held in Australia in August, 1981.

Photographs in this issue by Robin Parow

Book Donations Boost Arboretum's Circulating Collection

Generous donations of specialty books from Mrs. Janet Adams, Pine Plains, and Mrs. Paul Peabody, Millbrook, have enhanced the Arboretum's circulating collection, helping to make it one of the most complete collections of botanical, horticultural, and alternative energy literature in the Mid-Hudson area.

These new acquisitions include *The Art of Japanese Gardens*, *Fabre's Book of Insects*, *A Sampler of Wayside Herbs*, *Flower Arrangements to Copy*, and *The Washington Star Garden Book*.

Other new books in the Arboretum's circulating collection include such topics as energy-saving projects, building log houses, a handbook of garden insects and much more.

The Cary Arboretum Library, located on the first floor of the solar heated Plant Science Building, Route 44A, is open Monday through Friday, 9 a.m. to 4 p.m. and evenings by appointment. For more information, contact Arboretum Librarian Mrs. Betsy Calvin, (914) 677-5343, extension 270.

International Paper Company Renews Grant

The International Paper Company Foundation, which has sponsored research carried out by graduate student Dawn Lange under the supervision of Arboretum Forest Geneticist Dr. David Karnosky, has renewed a fellowship grant to continue sponsorship for a third year.

The grant, in the amount of \$8,100, will allow Ms. Lange to continue research to obtain a hybrid elm which will have the desirable ornamental and urban-hardiness

traits of the American Elm (*Ulmus americana*) and the disease resistance of the Siberian elm (*Ulmus pumila*).

The International Paper Company Foundation, established in 1952, sponsors organizations whose projects will yield results which can be utilized for the betterment of surrounding communities. Members of the foundation were especially impressed with the possibility that the resulting elm

will be of great significance to the botanical world.

Work to date has concentrated on testing various enzyme combinations for isolating protoplasts from different tissues of the two species, examining general growth media for culturing the protoplasts, fusing the protoplasts, and identifying the hybrid fusion products. Current work involves attempts to regenerate whole plants from the fusion products.

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